

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* JUNICHI HAYAKAWA and  
TAKAHARU ICHIRYU

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Appeal 2006-2120  
Application 09/890,863  
Technology Center 1700

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Decided: October 31, 2006

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Before OWENS, WALTZ, and GAUDETTE, *Administrative Patent Judges*.  
WALTZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the Primary Examiner's non-final rejection of claims 19 through 24 dated May 20, 2005. Claims 19-24 are the only claims pending in this application. Since these claims have been twice rejected, we have jurisdiction pursuant to 35 U.S.C. § 134. *See Ex parte Lemoine*, 46 USPQ2d 1420, 1423 (Bd. Pat. App. & Int. 1998).

According to Appellants, the invention is directed to a loud-speaker comprising a diaphragm, where a portion of the diaphragm comprises a woven fabric woven with a thread comprising fibers of plural kinds, with at least one of the fibers having poor dye-affinity such as PBO fiber and at least another fiber colored with dyes or pigments (Br. 3-4).<sup>1</sup> Claims 19, 21, and 22 are illustrative of the invention and are reproduced below:

19. A woven fabric for loud-speaker diaphragm using a woven fabric woven with a thread comprising fibers of plural kinds, characterized in that at least one of said fibers of the plural kinds is a fiber with poor dye-affinity such as PBO (poly(p-phenylene benzobisoxazole)) fiber and at least another one of said fibers of the plural kinds is a fiber colored with dyes or pigments.

21. A diaphragm for loud-speaker, characterized in that said woven fabric for loud-speaker diaphragm according to claims 19 or 20 is used in at least a portion of the diaphragm.

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<sup>1</sup> We refer to and cite from the “Supplemental Appeal Brief” dated Sep. 22, 2005.

22. A loud-speaker comprising a loud-speaker diaphragm, characterized in that the loud-speaker diaphragm is made up of said woven fabric for loud-speaker diaphragm according to claims 19 or 20.

The Examiner has relied on the following references as evidence of unpatentability:

|         |              |               |
|---------|--------------|---------------|
| Giesick | US 4,856,110 | Aug. 15, 1989 |
| Warner  | US 4,918,912 | Apr. 24, 1990 |
| Kolmes  | US 4,936,085 | Jun. 26, 1990 |
| Weber   | US 5,233,821 | Aug. 10, 1993 |

*Research Disclosure* 35439 (RD '439), Anonymous, "Uses for PBO Fiber," pp. 678-684, October 1993.

Claims 21-24 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite (Answer 3). Claims 19-24 stand rejected under 35 U.S.C. § 102(b) as anticipated by Weber (Answer 4). Claims 21-24 stand rejected under 35 U.S.C. § 103(a) as unpatentable over RD '439 in view of Weber (Answer 5).

Based on the totality of the record, we REVERSE the rejection based on § 112, second paragraph essentially for the reasons stated in the Brief and Reply Brief, as well as those reasons set forth below. We also REVERSE the rejection of claims 21-24 under both § 102(b) and § 103(a) essentially for the reasons stated in the Brief and Reply Brief, as well as those reasons set forth below. We AFFIRM the rejection of claims 19 and 20 under

§ 102(b) essentially for the reasons stated in the Answer, as well as those reasons set forth below. Accordingly, the decision of the Examiner is AFFIRMED-IN-PART. Additionally, pursuant to the provisions of 37 C.F.R. § 41.50(a)(1), we REMAND this application to the jurisdiction of the Examiner for actions consistent with our remarks below.

#### OPINION

##### A. The Rejection under § 112, ¶ 2

The Examiner finds that the term “diaphragm” recited in claim 21 is indefinite since it is unclear what portion of the diaphragm is made up by the woven fabric and what additional structural limitations of the diaphragm are claimed (Answer 3). With regard to claims 22 and 24, the Examiner finds that it is unclear what the structures of the loud-speaker and the loud-speaker diaphragm are (*id.*). The Examiner finds that neither claim positively recites structure of the speaker itself or how the diaphragm relates to the speaker structure (Answer 4).

If one skilled in the art would understand the bounds of the claim when read in light of the specification, then the claim satisfies the § 112, second paragraph, definiteness requirement. *See Miles Labs., Inc. v. Shandon, Inc.*, 997 F.2d 870, 875, 27 USPQ2d 1123, 1126 (Fed. Cir. 1993). The definiteness of the language employed in a claim must be analyzed, not in a vacuum, but always in light of the teachings of the prior art and the particular application disclosure. *See In re Angstadt*, 537 F.2d 498, 501, 190 USPQ 214, 217 (C.C.P.A. 1976). As correctly argued by Appellants (Reply Br. 1 and 3-4), the terms “diaphragm” and “loud-speaker” are set forth and exemplified in the Specification (see Figures 6(A) and 6(B)) and these terms are relatively common terms that are readily understandable to

one of ordinary skill in this art. The Examiner has not identified any requirement that the claims set forth a “minimum structure” or that the claims must set forth structure that was conventional and known in the art. The initial burden of establishing unpatentability, on any ground, rests with the Examiner. *See In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). We determine that the Examiner has not met this initial burden. Therefore we cannot sustain the rejection of claims 21-24 under the second paragraph of § 112 as being indefinite.

B. The Rejection under § 102(b)

The Examiner finds that Weber discloses a fabric containing a plurality of PBO fibers, where these fibers may be grouped together to form yarns, and the yarns may be made into fabrics by knitting or weaving (Answer 4). The Examiner further finds that Weber discloses that the yarn can also contain a composite fiber which includes PBO fibers and aramid, glass, gel-spun polyethylene, or steel fibers as cut-resistant fibers (*id.*). The Examiner also finds that Weber discloses that the cut-resistant fibers are preferably present in the core of the yarn and wrapped by “wrap fibers” such as cotton, polyester, or nylon (*id.*). The Examiner cites the Examples of Weber, which specifically disclose a PBO core fiber with a polyester wrap of “dyed polyester” (*id.*). From these findings, the Examiner determines that claims 19-21 and 23 are anticipated by Weber (Answer 5).<sup>2</sup> With regard to claims 22 and 24, the Examiner has construed the recitation of “loud-

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<sup>2</sup> The Examiner cites Kolmes, Warner, and Giesick as additional references which were incorporated-by-reference into Weber as evidence that PBO can be used instead of, or in addition to, aramid fibers (Answer 4-5). We determine that these references are unnecessary to our decision as discussed *infra*.

speaker” as an intended use, with these claims only reciting the woven fabric per se, and thus determines that these claims are also anticipated by Weber (*id.*).

Appellants argue that Weber does not teach all the elements of the claims (Br. 5). Appellants argue that, given a reasonable interpretation of the terms “diaphragm” and “loud-speaker,” the cut-resistant fabric of Weber cannot be construed as reading on the claims, especially where claims 22 and 24 positively recite a loud-speaker and claims 21 and 23 positively recite a diaphragm (Br. 6-7; Reply Br. 5-6). Appellants further argue that the preamble of claims 19 and 20 has been relied upon during prosecution to distinguish over the prior art and thus the preamble is a claim limitation (Br. 9; Reply Br. 6).

With regard to claims 19 and 20, we determine that the claims require a woven fabric comprising fibers of PBO and “at least another ... fiber colored with dyes or pigments” (see claim 19 on appeal). The Examiner has found that Weber discloses an Example of a woven fabric comprising fibers of PBO and a dyed polyester (Answer 4; see Weber 8, Table 2, Glove 1). Therefore, we determine that Weber discloses every element of claims 19 and 20 with the exception of the claim preamble “for loud-speaker diaphragm using a woven fabric woven with a thread.” Accordingly, we must determine the effect of this preamble language. The determination of the effect of preamble language is but a part of the broader task of claim construction. See *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 621, 34 USPQ2d 1816, 1820 (Fed. Cir. 1995).

Language in a claim preamble, however, acts as a claim limitation only when such language serves to give meaning to a claim and properly define the invention, not when the preamble merely states a purpose or intended use of the invention. *See In re Paulsen*, 30 F.3d 1475, 1479, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994). “[W]here a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention, the preamble is not a claim limitation. [Citations omitted].” *Rowe v. Dror*, 112 F.3d 473, 478, 42 USPQ2d 1550, 1553 (Fed. Cir. 1997).<sup>3</sup> As correctly argued by the Examiner (Answer 10), the preamble language recited in claim 19 on appeal refers only to an intended use of the fabric and does not add any positive structural limitations to the claimed woven fabric. Since the woven fabric of Weber is easily formed into many protective garments (e.g., see Examples 1 and 2), we determine that it has been established that the woven fabric taught by Weber would have been capable of performing the function recited in the preamble of claim 19 on appeal. *See In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). Accordingly, we determine that every limitation of claims 19 and 20 is described by Weber and thus we affirm the rejection of claims 19 and 20 under § 102(b) over Weber.

Claims 21-24 present a different issue. As correctly argued by Appellants, these claims positively recite either a diaphragm or a loud-speaker. As we have construed these claims (see the discussion above

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<sup>3</sup> We note that Appellants cite the *MPEP* which states that language in the preamble “must be evaluated to determine whether the recited purpose or intended use results in a structural difference” (Br. 8).

regarding the rejection under § 112, ¶ 2), the disclosure of the woven fabric by Weber is not sufficient to “read on” these claims. Contrary to the Examiner’s argument (Answer 8), the diaphragm and loud-speaker as claimed are not “defined as the woven fabric itself.” Although a diaphragm may comprise only a woven fabric, one of ordinary skill in this art would have recognized that the woven fabric would have a conventional structure, i.e., the shape and arrangement, as set forth in Figure 6. Similarly, the loud-speaker as claimed would have the conventional structure as known in this art. The Examiner has not established that Weber discloses or describes these limitations of claims 21-24. Therefore we cannot sustain the rejection of claims 21-24 under § 102(b) over Weber.

C. The Rejection under § 103(a)

The Examiner finds that RD ‘439 discloses that PBO can be used as a blend in various end uses such as speaker cones, and teaches that PBO has improved properties over known aramid fibers (Answer 5). The Examiner applies Weber as discussed above (*id.*). From these findings, the Examiner concludes that it would have been obvious to one of ordinary skill in the art to produce blended woven fabrics having PBO as described by Weber and using those fabrics in any of the end uses disclosed for PBO in RD ‘439 (Answer 6).

As correctly argued by Appellants (Br. 11 and 13; Reply Br. 8), the Examiner has failed to provide any convincing reason for the combination of RD ‘439 with Weber to produce the invention as claimed. *See In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). The Examiner has failed to provide any convincing reasoning or evidence why one of ordinary skill in the loud-speaker art would have used the woven



cut-resistant fabric disclosed by Weber in the speaker cone of RD '439, when RD '439 only discloses speaker cones with PBO diaphragms (p. 679) while Weber discloses PBO and dyed polyester yarns used to produce cut-resistant gloves (Table 2).

For the foregoing reasons, we determine that the Examiner has failed to establish a prima facie case of obviousness in view of the reference evidence. Therefore we reverse the rejection of claims 21-24 under § 103(a) over RD '439 in view of Weber.

#### D. Remand to the Examiner

Pursuant to the provisions of 37 C.F.R. § 41.50(a)(1), we remand this application to the jurisdiction of the Examiner for the Examiner and Appellants to review the patentability of claims 19-24 under 35 U.S.C. § 112, second paragraph. Specifically, we remand to the Examiner for a determination of the definiteness of the claim language “a fiber with poor dye-affinity such as PBO.” We determine that PBO is the only such fiber disclosed in the original disclosure. We also determine that the cited prior art does not disclose or suggest the “dye-affinity” of PBO or other fibers, much less disclose or suggest what “poor dye-affinity” encompasses. Furthermore, we find that the original disclosure fails to define the relative term “poor dye-affinity” or provide any guidance as to how to determine the scope of this term. Accordingly, the scope of the claims appears to be indeterminate or indefinite. *See Seattle Box Co., Inc. v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 826, 221 USPQ 568, 574 (Fed. Cir. 1984); *Ex parte Anderson*, 21 USPQ2d 1241, 1249 (Bd. Pat. App. & Int. 1991).

#### E. Summary

The rejection of claims 21-24 under 35 U.S.C. § 112, ¶ 2, is reversed. The rejection of claims 19 and 20 under 35 U.S.C. § 102(b) over Weber is affirmed. The rejection of claims 21-24 under 35 U.S.C. § 102(b) over Weber is reversed. The rejection of claims 21-24 under 35 U.S.C. § 103(a) over RD '439 in view of Weber is reversed. Accordingly, the decision of the Examiner is affirmed-in-part. The application is also remanded to the Examiner for action consistent with our remarks above.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv)(2004).

**AFFIRMED-IN-PART & REMANDED**

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ERIC ROBINSON  
PMB 955  
21010 SOUTHBANK STREET  
POTOMAC FALLS, VA 20165